ULTRASONICS

Published by Iliffe Industrial Publications Ltd., Dorset House, Stamford Street, London, S.E.1. Telephone: Waterloo 3333. Telegrams/Telex: Ultrasonic Iliffepres 25137, London.

Branch offices at Coventry: 8-10 Corporation Street. Telephone: Coventry 25210. Birmingham 2: King Edward House, New Street. Telephone: Midland 7191. Manchester 3: 260 Deansgate. Telephone: Blackfriars 4412 and Deansgate 3595. Glasgow C.2: 123 Hope Street, Telephone: Central 1265/6. Bristol 1: 11 Marsh Street. Telephone: 2149/1.

OVERSEAS ASSOCIATES: W. GERMANY: Krausskopf-Verlag für Wirtschaft G.m.b.H. & Co., Lessingstrasse 12-14, Mainz, Germany. Telex: 4187752. U.S.A.: Thomas Skinner & Col (Publishers) Ltd., 111 Broadway, New York 6, N.Y., U.S.A. Telephone: Di-9-1197.

ANNUAL SUBSCRIPTION: £4 0s. 0d. (single copy 25s.); U.S.A. and Canada: $12.00. *Special rates for members of certain scientific societies (list on request).*

Advisory Editors:
E. A. NEPPIRAS, B.Sc., A.R.C.S., F.Inst.P.
C. N. SMYTH, M.A., B.Sc., M.I.E.E.
R. W. B. STEPHENS, A.R.C.S., Ph.D.

International Editors:

Argentina
PROFESSOR G. L. FUCHS
Instututo de matematica, Universidad Nacional de Cordoba, Cordoba

Australia
G. KOSSOFF
Commonwealth Acoustic Laboratories, Miller's Point, Sydney

Germany
PROFESSOR DR. R. POHLMAN
Laboratorium für Ultraschall, Rheinisch-Westfälische Technische Hoschschule (51) Aachen, Templergraben 55

Hungary
DR. P. GREGUSS
XIV, Lumumba u. 226, Budapest

India
DR. S. C. SRIVASTAVA
Department of Chemistry, University of Allahabad, Allahabad

Japan
DR. OTOHIKO NOMOTO
Professor of Physics, Tokyo University of Agriculture and Technology, Tokyo

Netherlands
C. M. VAN DER BURGT
NV Philips Gloeilampenfabriken, Eindhoven

New Zealand
DR. F. H. SAGAR
Associate Professor of Physics, University of Auckland, Auckland

Poland
DR. A. S. SLIWINSKI
Department of Acoustics and Vibration Theory, Mickiewicz University, Poznan

United Kingdom
G. BRADFIELD
National Physical Laboratory, Teddington, Middlesex

U.S.A.
DR. R. R. WHYMARK
Assistant Director of Physics Research, IIT Research Institute, Chicago 16, Illinois

U.S.S.R.
DR. I. GOLIAMINA
Acoustical Institute, Academy of Sciences of U.S.S.R., Moscow

INDEX TO VOLUME 2

January - December 1964

DETROIT PUBLIC LIBRARY

APR 24 1900 Bu

TECHNOLOGY & SCIENCE

Airborne sound 5
Animal ultrasound 23
Anisotropy, stress-induced 95
Automatic testing, tank for 90

Authors

Atsumi, K. 82
Bell, J. F. W. 39
Bullen, M. A. 124
Crawford, A. E. 120, 211
de Klerk, J. 137
Doyle, B. P. 39
Flinn, M. 23
Freundlich, H. F. 124
Garrett, W. J. 29
Gordon, D. 199
Greguss, P. 5, 134
Hanstock, R. F. 109
Harris-Maddox, B. 60
Haslett, R. W. G. 11, 65
Hopkin, P. R. 65
Howl, D. M. 186
Jerrard, H. G. 74
Kay, L. 53
Kimoto, S. 82
Kossoff, G. 29
Liu, C. N. 29
Lumb, R. F. 109
Mikhailov, I. G. 129, 203
Muroi, T. 82
Neppiras, E. A. 167
Omoto, R. 82
Perkins, J. P. 193
Pye, J. D. 23
Redwood, M. 174
Robinson, D. E. 29
Sains, H. 179
Tsunemoto, M. 82
Uchida, R. 82
Walker, D. C. B. 109
Wells, P. N. T. 124

Birefringence in liquids 74
Blind aid 53

Books

ABC's of ultrasonics, by Alan Andrews 160
Acoustic behaviour of animals, edited by R. G. Busnel 219
Acoustique sous-marine, by L. Guilysse and P. Sabathe 100
A.S.T.M. tentative recommended practice 101
Course of lectures on the theory of sound, A, by S. N. Rschevkin 220
Dictionnaire general d'Acoustique et d'electroacoustique, by Henry Piraux 160
Essays in electronics, by M. A. Scroggie 100
I.S.O. Recommendation 150. Testing and calibration of ultrasonic therapeutic equipment 221
Machining intractable materials with ultrasonic and sonic vibrations, by A. I. Markov 160
Microphones, by A. E. Robertson 49
O.T.S. Selective bibliography 101
Physical acoustics—principles and methods, Vol. 1, Part A, edited by W. P. Mason 219
Sound and ultrasound waves in air, water and solid bodies, by V. A. Krasil'nikov 100
Stability of permanent magnets, by G. E. Gould 221
Transistor amplifiers for audio frequencies—Principles of design, by Thomas Roddam 160
Ultrasonic testing, the memoranda from the Institute of Weldings Select Conference 49
Ultrasonics and colloids, by S. Prakash and A. K. Ghosh 49
Ultrasound as a diagnostic and surgical tool, by Douglas Gordon 159
Ultrasound in the chemical industry, by V. A. Nosov 220

Ultrasound—Physico-chemical and biological effects, by I. E. El'piner 159
Cavitation, measurement of 120
Cleaners
Branson Instruments Inc., Sonogen B-250 104
Branson Instruments Inc., degreaser 105
Czechoslovakian 52
Elliott Bros. (London) Ltd., modular cleaner 211
Elliott Bros. (London) Ltd., 1 litre 151
Elliott Bros. (London) Ltd., 5-stage 104
Industrial Instruments Ltd., Transiclean 104
Kerrys (Ultrasonics) Ltd., 2-tank 151
Kerrys (Ultrasonics) Ltd., KG80 151
L. & R. Ultrasonics Ltd., Varimatic 103
M.E.L. Equipment Co. Ltd., filter unit 151
Powertron Corporation, bench mounted cleaner 105
Ultrasonics Ltd., Rapiclean 213
Ultrasonics Ltd., Hospital cleaner 214
Clinical investigations 87
Conferences
Tenth jubilee seminar on acoustics, Poznan, July 1963 45
Symposium on physics and non-destructive testing, San Antonio, October 1963 45
Medical ultrasonic discussion groups, London, November 1963 46
1963 Ultrasonics symposium of the I.E.E.E., Washington, December 1963 47
Physical Society exhibition, January 1964 96
Non-destructive testing in maintenance, April 1964 155
Welding engineering 1964, April 1964 156
Electronics for medical diagnosis and monitoring, April 1964 153
Instruments, electronics and automation exhibition, May 1964 150
Sound international symposium on ultrasound as a diagnostic and surgical tool, May 1964 156
Symposium internationale de diagnostica ultrasonica in ophthalmologica (SIDUO), June 1964 157
Planning and design for protection from noise, June 1964 215
First conference "Ultrasonics for Industry," September 1964 216
Symposium neuroradiologicum, September 1964 217
Forward thinking in ultrasonics, September 1964 218
Third congress on materials testing, September 1964 218

Defect size, correlation of 186

Echo sounding 11
Equipment
Dip tinning
Barlow-Whitney Ltd. 105
Artronics Company 166
Flaw detectors
Branson Instruments Inc., Sonoray 30 51, 152, 153
Dawe Instruments Ltd., Visigauge 108
Magnaflux Ltd., Sonizon 50-300 107
Solus Schall, Echograph UMG 10.2 213
Sonatest Ltd., TE 6 52
Sperry Products Ltd., Reflectoscope 154
Ultrasonoscope, Mk. 5 213
Ultrasonoscope, low frequency tester 106
Machining
Dawe Instruments Ltd., Sonifer 153
Kerry's (Ultrasonics) Ltd., Sonorode 152
Macrosonics Corporation, High power transducers 105
Medical equipment
Dallons Laboratories, Medi-Sanah 154
Hungarian therapeutic equipment 52
Mettler Electronics, Therapeutic equipment 154
Oscillators and generators
Interlab Inc., Dual frequency generator G24 107
Processing equipment
Dawe Instruments Ltd., Sonifer 153
Macrosonics Corporation, aerosols 50
Macrosonics Corporation, continuous flow processing 51
Sensing equipment
Acoustic link 151
Electronic Machine Control Ltd., sensors 150
Elliott Bros. (London) Ltd., line hydrophone 151
Elliott Bros. (London) Ltd., vehicle detector 108
Femco, Sonicontrol 51
Powertron Corporation, UC1201 liquid level control 108
Ultra Electronics Ltd., sensors 150
Ultra Electronics Ltd., blind aid 150, 103
Vacuum Reflex Ltd., immersible transducer 214, 166
Westool Ltd., modular amplifier 150
Thickness measurement
Dawe Instruments Ltd., Visigauge 108
M.E.L. Equipment Co. Ltd., Sonatest TE/7 166
Transducer, mechanical B-scan, Carl Zeiss 152
Ultrasonic image system, Sonicon, James Electronics Inc. 107
Welding and sealing
Branson Sonic Power, Sonifer S110 106
M.E.L. Equipment Co. Ltd., Plastics sealer 152
Omega Laboratories Ltd., Plastics sealer 50
S. Smith & Sons Ltd., 100 W welder 215
Eye, propagation in 134

Fish detection 65

Intensity, measurement of, in liquids and in solids 129

Liquid-borne sound, applications 5

Machining
diamond impregnated probe 1
cutting machines 148
and forming 167
recent applications 71

Phonon-phonon interactions 137
Piezomagnetic vibrators, analysis of 193
Power, measurement of milliwatt 124
Propagation
in polymer solutions 203
in solids 174
in non-uniform rods 39
Pulse-echo equipment, comparison of 199

Sensing 179

Testing
boost motors 60
immersion tank 90
simulator for 92
insulators 94
extruded bar stock 186
tube welds 209
tubes 109
plastics insulators 94
Tomography, of liver and A.S.D. 82

Visualization, design criteria for 29

Printed at The Baynard Press by Sanders Phillips & Co., Ltd., Chryssell Road, London, S.W.9, and published by Iliffe Industrial Publications Ltd., Dorset House, Stamford Street, London, S.E.1.